Caveat !

Which energy should be challenged by model-makers
[In litterature it is usually 100 EeV]

Highest energy observed : 320 EeV

MFP of nuclei through 3K CMB : 6~Mpc

Average energy loss in an inelastic photoproduction reaction : ~20%

If source is at 50 Mpc, needs E > 2 ZeV
[much more if detected CR is a secondary : uhecrons, neutrinos, gammas…]

Add losses at source (beam-dump), use more refined models (Anchordoqui et al., Berezinsky…)

→ E ~ 10 ZeV